

42

STANDING COMMITTEE ON ENERGY

(2013-14)

FIFTEENTH LOK SABHA

MINISTRY OF NEW AND RENEWABLE ENERGY

**[Action Taken on the recommendations contained in the
Thirty-Sixth Report (15th Lok Sabha) on International
Cooperation in New and Renewable Energy Sector]**

FORTY SECOND REPORT



**LOK SABHA SECRETARIAT
NEW DELHI**

December, 2013/Agrahayana, 1935 (Saka)

**STANDING COMMITTEE ON ENERGY
(2013-14)**

(FIFTEENTH LOK SABHA)

MINISTRY OF NEW AND RENEWABLE ENERGY

**[Action Taken on the recommendations contained in the Thirty-Sixth
Report (15th Lok Sabha) on International Cooperation in New and
Renewable Energy Sector]**

Presented to Lok Sabha on 13.12.2013

Laid in Rajya Sabha on 13.12.2013



**LOK SABHA SECRETARIAT
NEW DELHI**

Decemberr, 2013/Agrahayana, 1935 (Saka)

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COMPOSITION OF THE STANDING COMMITTEE ON ENERGY
(2013-14)

Shri Mulayam Singh Yadav - **Chairman**

LOK SABHA

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3. Shri Syed Shahnawaz Hussain
4. Shri Gurudas Kamat
5. Shri Shripad Yesso Naik
6. Shri Jagdambika Pal
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11. Shri Gutha Sukhender Reddy
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13. Shri Nripendra Nath Roy
14. Shri C.L. Ruala
15. Shri Sushil Kumar Singh
16. Shri Radha Mohan Singh
17. Shri Jagadanand Singh
18. Smt. Pratibha Singh
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20. Shri Bhisma Shankar *alias* Kushal Tiwari

RAJYA SABHA

21. Shri V.P. Singh Badnore
22. Shri Shyamal Chakraborty
23. Shri Y.S.Chowdary
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25. Shri Bhagat Singh Koshyari
26. Shri Kiranmay Nanda
27. Dr. Anil Kumar Sahani
28. Shri Birender Singh
29. Shri Motilal Vora

SECRETARIAT

- | | | |
|----|--------------------------|-----------------|
| 1 | Shri Brahm Dutt | Joint Secretary |
| 2. | Shri N.K.Pandey | Director |
| 3. | Smt. L.Nemjalhing Haokip | Under Secretary |

INTRODUCTION

I, the Chairman, Standing Committee on Energy having been authorized by the Committee to present the Report on their behalf, present this 42nd Report on the action taken by the Government on the recommendations contained in 36th Report of the Standing Committee on Energy on "International Cooperation in New and Renewable Energy Sector".

2. The 36th Report was presented to Hon'ble Speaker on 25th May, 2013 and to Lok Sabha on 6th August, 2013 and was laid in Rajya Sabha on the same day. Replies of the Government to all the recommendations contained in the Report were received on 4th November, 2013.

3. The Report was considered and adopted by the Committee at their sitting held on 11th December, 2013.

4. An Analysis on the Action Taken by the Government on the recommendations contained in the 36th Report of the Committee is given at Appendix-II.

5. For facility of reference and convenience, the observations and recommendations of the Committee have been printed in bold letters in the body of the Report.

NEW DELHI
12 December, 2013
Agrahayana 21,1935 (Saka)

MULAYAM SINGH YADAV,
Chairman,
Standing Committee on Energy

CHAPTER – I

This Report of the Standing Committee on Energy deals with the action taken by the Government on the Recommendations/Observations contained in their Thirty-Sixth Report (Fifteenth Lok Sabha) on "International Cooperation in New and Renewable Energy Sector"

2. The Thirty-Sixth Report was presented to Hon'ble Speaker on 25th May, 2013 and to Lok Sabha on 6th August, 2013 and was laid on the Table of Rajya Sabha on the same day. The Report contained 14 Recommendations/Observations.

3. Action Taken Notes in respect of all the Recommendations/Observations contained in the Report have been received from the Government. These have been categorized as follows:

- | | | |
|-------|---|---------------------------|
| (i) | Recommendations/Observations which have been accepted by the Government: | |
| | Serial Nos. 1,3,5,6,7,9,10,11,12,13 and 14 | Total -11
Chapter-II |
| (ii) | Recommendation/Observation which the Committee do not desire to pursue in view of the Government's replies: | |
| | Nil | Total - 00
Chapter-III |
| (iii) | Recommendations/Observations in respect of which the replies of the Government have not been accepted by the Committee and which require reiteration: | |
| | Serial Nos. 2, 4 and 8 | Total-03
Chapter-IV |
| (iv) | Recommendation/Observation in respect of which the final replies of the Government are still awaited: | |
| | Nil | Total - 00
Chapter-V |

4. The Committee desire that Action Taken Notes on the Recommendations/Observations contained in Chapter-I of the Report may be furnished to the Committee within three months of the presentation of this Report. In reply to some of the vital recommendations of the Committee, the Ministry has stated that these have been noted for future action. The Committee would await conclusive action in all such cases in due course.

5. The Committee will now deal with action taken by the Government on some of their Recommendations that require reiteration or merit comments.

A. Policy/framework on Renewable Energy Sector

(Recommendation Serial No.2, Paragraph No.2.2)

6. The Committee had noted the energy supply imbalances in the country and that economic growth requires the fulfillment of the energy needs. To sustain the growth, serious efforts are required to ensure the requisite energy supply. Rise in per capita consumption and spread of energy access has also strained the demand – supply gap of the energy. The Committee had felt that conventional sources of energy have their own limitations and that renewable energy can make substantial contribution in meeting our energy requirements. Our country has huge potential for power generation through renewable sources such as wind, solar, bio-mass, small hydro etc. For sustained development of this sector, vigorous and concerted efforts will have to be made for the New and Renewable Energy sector. Of late, renewable energy has become an important component of our energy planning process and the Ministry of New and Renewable Energy has been facilitating the implementation of broad spectrum programmes including harnessing of renewable power, R&D in renewable energy sector, renewable energy to rural areas for lighting, use of renewable energy in urban, industrial and commercial applications etc. The Committee had also felt that the country have the potential to play a leading role globally in the renewable sector. They had, therefore, recommended that a proper policy framework on renewable energy sector should be brought out keeping in view our strengths

and weaknesses with regard to various aspects of renewable energy such as proper assessment of potential resource-wise, wind and solar mapping, taking forward the initiatives in thermal & tidal energy, testing and certification, investment for infrastructure, development to attain long term goal of sustainable and inclusive energy for future. They had also recommended that such areas should be prioritized for harnessing in a time bound manner and that our weaknesses should be analyzed with a view to rectify them so as to ensure the maximum harnessing of various sources of renewable energy during off season and not so suitable conditions.

7. The Ministry of New and Renewable Energy in their Action Taken Reply has stated as under:

" The estimated renewable energy resource assessment carried out by the Ministry in various renewable energy sources is being further assessed especially for Wind and Solar Energy based on the advance tools and available technological options involving international institutions / agencies. The Centre for Wind Energy Technology (CWET), Chennai is assessing off shore wind power potential with the help of institutions / agencies capable to estimate such potential. Similarly, The Solar Energy Centre, now re-named National Institute of Solar Energy (NISE), is associated with development of solar radiation maps for the country".

8. The Committee note that the reply of the Government has not addressed the Committee's recommendation to have a proper policy framework on renewable energy sector keeping in view our strengths and weaknesses with regard to various aspects of renewable energy resources. The Ministry has merely stated that the resources assessment is being carried out in the area of wind and solar energy by C-WET and NISE respectively. Besides wind and solar energy, the Committee would like to be updated about the initiatives taken/being taken or strategy adopted by the Ministry or by C-WET, NISE and other Institutions regarding potential assessment in other renewable energy resources as well. The Committee also would like to reiterate their

recommendation that a proper policy framework on renewable energy sector should be brought out keeping in view our strengths and weaknesses with regard to various aspects of renewable energy such as proper assessment of potential resource-wise, wind and solar mapping, taking forward the initiatives in thermal and tidal energy, testing and certification, investment for infrastructure, development to attain long term goal of sustainable and inclusive energy for future.

B. Memoranda of Understanding / Agreements / Cooperation

(Recommendation Serial No.3, Paragraph No.2.3)

9. The Committee had noted that Memoranda of Understanding / Agreements / Cooperation in renewable were signed with various countries which were of standard nature and lays the framework of co-operation between India and the signing country. They had also found that cooperation was also done with many other countries without any specific MoUs in renewable energy sector. The Committee were also informed that active interest has been taken under some of the MoUs, while in case of others, not much progress has been made for want of initiative by the concerned countries. The Committee had further been apprised that generally Memorandum of Understanding is only an intention to do something and is not legally binding whereas, under agreements / cooperation, it is enforceable legally where both parties agree on implementing specific work / task. The Committee had found the position stated by the Government with regard to MoUs/Cooperation/Agreements was not conclusive as International Cooperation inherently assumes some concrete action with regard to the object of the cooperation. They were not impressed by plea of the Government that these MoUs are not legally binding. The Committee, had therefore, recommended that MoUs, Cooperation or Agreements with any of the foreign country or entity abroad with regard to promotion of renewable energy in the country should be signed with utmost sincerity and purpose and not as a ritual. They had also recommended that transparency should be maintained and concrete initiatives should be taken by the Ministry to follow up their implementation as also to link their progress and achievements with

reference to signing fresh MoUs / renewal of MoUs, if required, with these countries in consultation with the Ministry of External Affairs.

10. The MNRE in their Action Taken Reply has stated as under:

"The suggestions of the Committee have been noted and fresh MoUs are being taken up with specific task and objects in mind and in consultation with the Ministry of External Affairs".

11. The Committee are more concerned about the effective implementation of the MoUs/ Agreements / Cooperation signed with various countries than the number of such MoUs/ Agreements / Cooperation signed. The objective behind the recommendation of the Committee is to ensure achievement and progress out of the MoUs/ Agreements / Cooperation signed. The Committee are happy that the MNRE are in the process of signing fresh MoUs with specific task and objects. However, the Committee would like to stress their recommendation that MoUs, Cooperation or Agreements with any foreign country or entity abroad with regard to promotion of renewable energy in the country should be signed with utmost sincerity of purpose and not as a ritual.

C. Commercial Cooperation

(Recommendation Serial No. 4, Paragraph No.2.4)

12. The Committee had noted that bilateral and multilateral co-operation frameworks has been established for co-operation and knowledge sharing in renewable energy technology and projects and that the focus of interaction for co-operation has been on exploring opportunities for exchange of scientists, shares experiences and take up joint research, design, development, demonstration and manufacture of new and renewable energy

systems and devices. The Committee were informed that interests have been shown by many South East Asian countries for strengthening / revival of MoUs and co-operations in renewable energy sector. The Committee had felt that while making efforts for collaboration with the developed countries for achieving technological excellence and cost efficiency, it was also important to collaborate with the developing / under-developed countries, where our expertise in technological advancement for harnessing the New and Renewable energy resources should be shared so that the commercial linkages could extend to the Indian domestic producers / exporters. Such International co operations would open doors for Indian manufacturing companies for supplies of indigenously manufactured renewable energy products, systems and devices specially in the wind, solar and hydro power sectors. The Committee, had therefore, recommended that the Ministry of New and Renewable energy to focus on commercial cooperation in renewable energy through MoUs / Agreements / joint ventures with developing / under-developed countries also to allow them to take advantage of the linkages in India such as manufacturing of renewable energy systems, devices, equipments, spare parts etc., while sharing their technological know-how as well.

13. In their Action Taken Reply, the Ministry has stated as under:

"The suggestions of the Committee have been noted. The Ministry of New and Renewable Energy has been interacting with several developed and developing countries for cooperation in new and renewable energy sector in close associations with central and state PSUs, industrial associations etc, with a view to establish commercial cooperation for supplies of indigenously manufactured renewable energy products, systems and devices.

In this context it may be noted that a "Joint Declaration of Intent" between Germany and India on Indo-German Development Cooperation regarding the "Establishment of Green Energy Corridors" was signed on 11th April 2013. The German Financial Institution namely kfW has agreed to provide Euro 1 billion loan. The first line of loan is expected to be delivered shortly. In addition, under India-USA Energy Dialogue, a MoU has been signed recently for "Promoting Energy Access through Clean Energy" ("PEACE"). Under this initiative, Export-Import Bank of the USA intended to mobilize up to US\$ 250 million EXIM Bank Financing for clean energy access. Similarly, DFID and EU are helping C-WET, Chennai to estimate off-shore wind power potential and identify most suitable sites for establishment off-shore wind farms in India. The Ministry also

established cooperation for initiating “Energy Access” in rural areas and promote “Access to Clean Energy” in association with UNDP, World Bank, GIZ and USA. Such cooperation would help Indian industries to get benefits.

The Ministry also helps and supports many developing countries in Africa, Asia, Egypt, etc. for resource estimation and installation of various Renewable Energy systems/devices. Indian manufacturing industries are executing and supplying various renewable energy systems/devices. The Ministry also provides support to developing countries for capacity building and imparting training etc. So far more than 900 participants were trained from over 81 countries by the Solar Energy Centre, Gurgaon, C-WET, Chennai and AHEC, IIT, Roorkee under Indian Technological and Economic Cooperation (I-TEC) programme with Ministry of External Affairs under Solar, wind and small hydro sectors”.

14. The recommendation of the Committee was to focus on commercial cooperation in renewable energy through MoUs / Agreements / joint ventures with developing / under-developed countries so as to allow them to take advantage of the linkages in India such as manufacturing of renewable energy systems, devices, equipments, spare parts etc. The Ministry, however, in their reply have highlighted the cooperation with only the developed and developing countries but none with the under-developed countries. It is encouraging to learn that so far 900 persons from over 81 countries have been trained in India by our Institutes involved in various activities of renewable energy. While the Committee take note of the cooperation with the developed and developing countries, they would like to reiterate their recommendation that the Ministry should focus on commercial cooperation in renewable energy through MoUs / Agreements / joint ventures with under-developed countries to allow

them to take advantage of the linkages in India such as manufacturing of renewable energy systems, devices, equipments, spare parts etc.

D. International Cooperation for cost effectiveness

(Recommendation Serial No. 6, Paragraph No.2.6)

15. The Committee had noted that India's renewable energy installed capacity has grown at an annual rate of 23% rising from about 3900 MW in 2002-03 to about 28000 MW in 2012-13 (up to March, 2013). They had also found that the increasing opportunities in the emerging market of India is bound to provide a strong impetus to the development of renewable energy sector. India, with a large proportion of its population in rural areas that have limited access to electricity creates a big opportunity for the deployment of renewable energy projects through solar, wind, biomass, biogas and small hydro power sources of energy. Though, renewable energy technology has relatively high installation cost but its operating cost is quite low. In many countries, some renewable energy technologies are already competitive compared to conventional energy sources, for instance, biomass or biogas applications in Thailand. The Committee had felt that a strong backup support is required for undertaking Research & Development, popularization of successful R&D activities among the masses, diligent deployment of skilled manpower, availability of the required finances at competitive rate rationalizing the inputs leading to lowering of cost for development of renewable energy sources. The success story of renewable energy largely hinges on the cost reduction and continued sustainability of its sources or which international cooperation will have to be resorted to with those countries who have successfully made a mark in the technological excellence as well as reduction in cost of power from various kind of renewable energy sources. The Committee, had therefore, recommended that sincere efforts should be made to enter into collaboration with the countries of proven technology advancements with cost effectiveness in renewable energy sectors having technological excellence and competitive cost with a view to bring down the cost of various renewable energy devices in the country.

16. In their reply, the Ministry of New and Renewable Energy has stated as under:

" The suggestions of the committee have been noted. The Ministry of New and Renewable Energy has been interacting with several developed and developing countries for cooperation in new and renewable energy sector in close associations with central and state PSUs, industrial associations etc. with a view to establish commercial cooperation for supplies of indigenously manufactured renewable energy products, systems and devices.

In this context it may be noted that a Joint Declaration of Intent between Germany and India on Indo-German Development Cooperation regarding the Establishment of Green Energy Corridors was signed on 11th April 2013. The German Financial Institution namely kfW has agreed to provide Euro 1 billion loan. The first line of loan is expected to be delivered shortly. In addition, under India-USA Energy Dialogue, a MoU has been signed recently for "Promoting Energy Access through Clean Energy" ("PEACE"). Under this initiative, Export-Import Bank of the USA intended to mobilize up to US\$ 250 million Ex-Im Bank Financing for clean energy access. Similarly, DFID and EU are helping C-WET, Chennai to estimate off-shore wind power potential and identify most suitable sites for establishment off-shore wind farms in India. The Ministry also established cooperation for initiating "Energy Access" in rural areas and promote "Access to Clean Energy" in association with UNDP, World Bank, GIZ and USA. Such cooperation would help Indian industries to get benefits".

17. The Committee's concern is about the high installation cost of renewable energy technologies in our country compared to many countries, where some renewable energy technologies are already competitive vis-a-vis conventional energy sources. The Committee had felt that International cooperation have to be resorted to with those countries who have successfully made a mark in the technological excellence as well as reduction in cost of power from various kind of renewable energy sources. In their reply, the Ministry has stated the

Indo-German Development Cooperation regarding the "Establishment of Green Energy Corridors" and Indo-USA dialogue for " Promoting Energy Access through Clean Energy, but they have not mentioned how these collaborations would help in bringing down the cost for production of renewable power in the country. The Committee are aware that the Financial Institutions of Germany and USA are providing loans to Government of India for promotion of Indian renewable energy under various programme. While acknowledging the initiatives taken by the Ministry, the Committee would like to re-emphasize that cost effectiveness should be kept in mind while entering into collaboration with countries in renewable energy sectors and sincere efforts should be made to enter into collaboration with the countries of proven technology advancements with cost effectiveness having technological excellence and competitive cost with a view to bring down the cost of various renewable energy devices in the country.

E. International Cooperation in Geo-thermal and Tidal Energy

(Recommendation Serial No.8 Paragraph No.2.8)

18. The Committee had noted that the geo-thermal energy potential as well as tidal energy potential in India has not been systematically and scientifically assessed or utilized. They found that the Government has practically done very little to harness this potential. The Committee had also found that the MNRE has signed a Memorandum of Understanding with the Government of Iceland for scientific cooperation and research in renewable energy and to explore potential of geo-thermal in India in October, 2007. They also found that the State Government of Gujarat has signed a Memorandum of Understanding in January, 2011 with UK and Singapore

companies for setting up of 250 MW tidal power plants in Gulf of Kachh. The Committee had felt that these MoUs were too few to harness the full potential. The Committee had also felt that such vast potential for electricity generation are being left almost unattended. Even the projects in which Memorandum of Understanding has been signed have not reported any significant progress. The Committee had recommended that the MNRE should focus on importing technologies from such advanced countries or wherever it is available would provide scientific cooperation and research to assess and utilize the potential of tidal and geo-thermal energy in India within a reasonable time frame. They had also recommended that the projects taken up in the MOU with concerned countries should be properly evaluated and regularly monitored to ensure that the objective for which these MoUs have been signed are achieved. The Committee had also recommended that the MNRE should keep themselves well abreast of the latest innovations or upcoming technologies world over so that the same could be imported and adapted for domestic production and harness the vast potential of renewable energy.

19. The Ministry of New and Renewable Energy in their reply has stated as under:

"The suggestions of the Committee have been noted for future action".

20. The Committee intended to be apprised about the initiatives taken in the areas of geo-thermal and tidal energy with respect to International Cooperation in the field. They expect the Ministry to enlighten them the progress made in the MOUs signed in this aspect viz. MOU signed with the Government of Iceland for scientific cooperation and research in renewable energy and to explore potential of geo-thermal in India in October, 2007 and the MOU signed between State Government of Gujarat with UK and Singapore companies for setting up of 250 MW tidal power plants in Gulf of Kachh. However, the Ministry simply stated that they have noted the suggestions of the Committee. The Ministry's reply merely stating that the suggestions of

the Committee have been noted for future action is not acceptable to them. The Committee, therefore, reiterate their recommendation that the MNRE should focus on importing technologies from such advanced countries which would provide scientific cooperation and research to assess and utilize the potential of tidal and geo-thermal energy in India within a reasonable time frame and also that the projects taken up in the MOU with concerned countries should be properly evaluated and regularly monitored to ensure that the objective for which these MoUs have been signed are achieved. The Committee desire to be apprised of the concrete action taken in this regard.

CHAPTER II
OBSERVATIONS/ RECOMMENDATIONS WHICH HAVE BEEN
ACCEPTED BY THE GOVERNMENT

(Recommendation Serial No.1, Paragraph No. 2.1)

The National electricity Policy was notified on 12th February, 2005 which, *inter alia*, provided that the National Electricity Plan for the ongoing Tenth Plan period and Eleventh Plan and perspective Plan for 10th, 11th and 12th Plan periods would be prepared and notified after revising the existing Power Plan by CEA. It was also stipulated that the Perspective Plans would take into consideration the rural electrification, generation, energy conservation, environmental issues, etc. The Policy also, *inter alia*, provided promotion of non-conventional energy sources and purchase of electricity from such sources by the States. The Committee are not very sure that such an exercise has been done in respect of non-conventional energy sources. The Committee, therefore, would like that a Perspective Plan is prepared exclusively for energy from non-conventional sources for the Twelfth Five Year Plan in synchronization to similar Plan for energy from conventional sources.

Reply of the Government

The Central Electricity Authority prepares National Electricity Plan after taking into account electricity demand projections by different sectors of the economy including in rural areas. Demand projections are technology agonistic. However, the Ministry of New and Renewable Energy has prepared a plan to install 30 GW generation capacity based on renewable energy sources during 12th Five Year Plan period. This includes 15 GW from Wind, 10 GW from solar and the remaining from biomass and small hydro power.

The 12th Five Year Plan proposes installation of 88.5 GW capacities from conventional energy sources. Thus the share of renewable energy in the electric installed capacity addition during the plan period would be around 25%.

Further, Power Grid Corporation of India Ltd (PGCIL) in the Green Energy Corridor Study prepared a plan for renewable power evacuation and transmission infrastructure for the planned renewable power capacity addition up to 2017.

F.No.1/2/2013-IR dated 4th November, 2013.

International Co-operation

(Recommendation Serial No.3, Paragraph No. 2.3)

The Committee are informed that Memoranda of Understanding / Agreements / Cooperation in renewable energy have been signed with various countries. The MoUs signed are of standard nature which lays the framework of co-operation between India and the signing country. These MoUs provide for constitution of Joint Working Groups (JWG) to formulate specific project proposals for implementation and for monitoring of implementation of various activities. The Committee also find that cooperation is also done with many other countries without any specific MoUs in renewable energy sector. The Committee have also been informed that active interest has been taken under some of the MoUs, while in case of others, not much progress has been made for want of initiative by the concerned countries. The constraints in this regard have been stated to be associated with advance resource assessment, mapping of wind, solar and biomass, promoting off shore wind power projects, testing and certifications, etc. Although, these constraints have been cited for hampering the progress of the sector, yet the Committee find them to be of routine nature only. The Committee have further been apprised that generally Memorandum of Understanding is only an intention to do something and is not legally binding whereas, under agreements / cooperation, it is enforceable legally where both parties agree on implementing specific work / task. The Committee find that the position stated by the Government with regard to MoUs/Cooperation/Agreements is not conclusive as International Cooperation inherently assumes some concrete action with regard to the object of the cooperation. They are not impressed by plea of the Government that these MoUs are not legally binding. It reflects on the seriousness of the Ministry for signing such MoUs and should not be resorted to if no concrete action is likely to emerge from this kind of general MoUs. The Committee, therefore, recommend that MoUs, Cooperation or Agreements with any of the foreign country or entity abroad with regard to promotion of renewable energy in the country should be signed with utmost sincerity and purpose and not as a ritual so that precious time and money can be fruitfully utilized within the sector. They also strongly recommend that transparency should be maintained and concrete initiatives should be taken by the Ministry to follow up their implementation as also to link their progress and achievements with reference to signing fresh MoUs / renewal of MoUs, if required, with these countries in consultation with the Ministry of External Affairs.

Reply of the Government

The suggestions of the committee have been noted and fresh MoUs are being taken up with specific task and objects in mind and in consultation with the Ministry of External Affairs.

F.No.1/2/2013-IR dated 4th November, 2013

(Recommendation Serial No.5, Paragraph No. 2.5)

The Committee find that technological advancement has important role in various fields of renewable energy to facilitate them to develop, operate and maintain various systems and devices apart from developing collaborative R&D programmes. Therefore, rapid advancement instead of gradual improvement in the renewable energy technology is the only way to optimally harness the available potential. Renewable energy systems are still in a relatively nascent stage of development. But they offer the country potentially huge primary energy sources, sustainable in perpetuity and available in one form or another. India is an active participant in the international dialogue on energy and the environment. The Committee feel that our country could benefit from increased cooperation with International experts, which will help Government, policy makers, industry and consumers to learn from relevant experiences and best practices from other countries who successfully use large amount of renewable energy applications. The committee strongly recommends that the Government besides focusing on increasing the installed capacity should also focus on technological advancement through increased cooperation with international experts and technologically advanced countries. Steps should be taken towards the aggregation and sharing of information on adaptation of relevant technologies and knowledge. Needless to emphasize these steps will take the goal of 2050 by which renewable share is expected to reach about 77% of total energy requirements globally.

Reply of the Government

Ministry is primarily focussing on technical collaborations required for initiating research and development, training and creating manufacturing bases with the advanced / developed countries especially US, Europe, Japan etc. It is to be mentioned that the ongoing international collaborations facilitated by the Ministry, helped in overcoming some of the technical constraints such as –

- i. Firming up of Resource Assessment of solar and wind energy using advanced techniques developed by the NREL, USA; GIZ, Germany; RISO Denmark.
- ii. Testing and Certification of Wind Turbines with RISO Denmark and NREL, USA
- iii. Off shore wind power development in India with Scottish Development International (SDI), Scotland and offshore wind resource assessment off the Tamil Nadu Coast, using SAR (Synthetic Aperture Radar) analysis of Satellite imagery with RISO-DTU, Denmark.
- iv. Solar Radiation resource mapping with German International Zusammenarbeit (GIZ).
- v. Hydrogen Fuel Cell – R&D Project with IIT-M and Imperial College, London.
- vi. R&D project on “Development of a Modular Central Receiver Concentrated Solar Power Plant for Decentralized Power Generation” in cooperation with (i) University of South Florida, USA, (ii) IMDEA Energy, Spain, and (iii) Institute of Energy Technology, Zurich.
- vii. To accelerate and sustain the Solar Water heating market growth through UNDP/GEF Global Solar Water Heating India Project.
- viii. Removal of Barriers to Biomass Power Generation in India” under UNDP/GEF assisted Project.
- ix. Access to Clean Energy under UNDP Project

F.No.1/2/2013-IR dated 4th November, 2013.

(Recommendations Serial No.6, Paragraph No.2.6)

The Committee note that India's renewable energy installed capacity has grown at an annual rate of 23% rising from about 3900 MW in 2002-03 to about 28000 MW in 2012-13 (up to March, 2013). As far as wind energy is concerned, it dominates India's renewable energy sector accounting for 70% of installed capacity (19051 MW) followed by biomass power (3695 MW), small hydro power (3632 MW) and solar power 1686 MW) that has just started registering its presence. The Committee find that the increasing opportunities in the emerging market of India is bound to provide a strong impetus to the development of renewable energy sector. India, with a large proportion of its population in rural areas that have limited access to

electricity creates to a big opportunity for the deployment of renewable energy projects through solar, wind, biomass, biogas and small hydro power sources of energy. Though, renewable energy technology has relatively high installation cost but its operating cost is quite low. In many countries, some renewable energy technologies are already competitive compared to conventional energy sources, for instance, biomass or biogas applications in Thailand. The Committee feel that a strong backup support is required for undertaking Research & Development, popularization of successful R&D activities among the masses, diligent deployment of skilled manpower, availability of the required finances at competitive rate rationalizing the inputs leading to lowering of cost for development of renewable energy sources. The success story of renewable energy largely hinges on the cost reduction and continued sustainability of its sources or which international cooperation will have to be resorted to with those countries who have successfully made a mark in the technological excellence as well as reduction in cost of power from various kind of renewable energy sources. The Committee, therefore, strongly recommend that sincere efforts should be made to enter into collaboration with the countries of proven in technology advancements with cost effectiveness in renewable energy sectors having technological excellence and competitive cost with a view to bring down the cost of various renewable energy devices in the country.

Reply of the Government

The suggestions of the committee have been noted. The Ministry of New and Renewable Energy has been interacting with several developed and developing countries for cooperation in new and renewable energy sector in close associations with central and state PSUs, industrial associations etc. with a view to establish commercial cooperation for supplies of indigenously manufactured renewable energy products, systems and devices.

In this context it may be noted that a Joint Declaration of Intent between Germany and India on Indo-German Development Cooperation regarding the Establishment of Green Energy Corridors was signed on 11th April 2013. The German Financial Institution namely kfW has agreed to provide Euro 1 billion loan. The first line of loan is expected to be delivered shortly. In addition, under India-USA Energy Dialogue, a MoU has been signed recently for "Promoting Energy Access through Clean Energy" ("PEACE"). Under this initiative, Export-Import Bank of the USA intended to mobilize up to US\$ 250 million Ex-Im Bank Financing for clean energy access. Similarly, DFID and EU are helping C-WET, Chennai to estimate off-shore wind power potential and identify most suitable sites for establishment off-shore wind farms in India. The Ministry also established cooperation for initiating "Energy Access"

in rural areas and promote “Access to Clean Energy” in association with UNDP, World Bank, GIZ and USA. Such cooperation would help Indian industries to get benefits.

F.No.1/2/2013-IR dated 4th November, 2013.

(Recommendations Serial No.7, Paragraph No.2.7)

The Committee note that there have been technological and commercial collaborations with advanced countries in wind energy, solar energy and biomass sector. In wind energy sector there are projects with 14 wind turbine manufacturers (with international cooperation or are 100% subsidiary of foreign cooperation) and Co-operation projects with NREL (New & Renewable Laboratory) in aero-structural design of wind turbines. In solar energy there are tie ups with various countries for solar thermal systems, cookers, water heater, SPV module testing amorphous silicon technology photo voltaic module reliability Industrial Process heat application and pilot projects in textile, pulp and paper, pharmaceutical and food processing sectors. The Committee are unaware any evaluation done by the MNRE or other Ministries with the objective to assess the extent to which projects under these international collaboration / Agreement have benefited domestic manufacturing of equipments / implements and to provide conducive infrastructure in New and Renewable sector source-wise. They feel that regular assessment of the projects under various MoUs/Agreements should be critically carried out so as to give clarity on the extent of technology import and technology transfer. The Committee, therefore, recommend that the projects under various collaborations should be evaluated on regular basis by the MNRE so as to assess the extent of technology absorption / adaptation after the technology has been imported through these international Co operations / collaboration / Agreements. They emphasize that the Ministry should also take necessary steps to assess the extent to which manufacturing sector in India is being strengthened in terms of in-house production and commercial applications of these international collaborations.

Reply of the Government

The suggestions of the committee have been noted and necessary steps such as Joint Working Group meetings are being organized to review the progress and take suitable steps to strengthen the collaboration with various countries with MoUs etc. have been signed.

F.No.1/2/2013-IR dated 4th November, 2013.

(Recommendations Serial No.9, Paragraph No.2.9)

The Committee find that Solar Energy Center (SEC), Centre for Wind Energy Technology (C-WET), Alternate Hydro Energy Centre (AHEC), are the prominent and main technical arms of the Government engaged in research and development of the various kinds of renewable energies in the country. The exchange of technical personnel working there and in various other technical institutions abroad has helped in acquiring advance technical knowledge and capacity building. The areas which have been dwelt upon are aero-structural design, inter-laboratory comparisons on power performance measurements in case of wind energy, off-shore wind source assessment, wind power forecasting training and application, wind energy technology training, data quality checking and algorithm, development for solar radiation resource assessment. The Committee feel that exchange of technical information and close coordination is essential for advancement of renewable energy to ensure an organized and orderly energy transition and to give the necessary support at required places. The Committee, therefore, strongly recommend that institutional mechanism and stable structure should be put in place for the purpose of international technological cooperation. This becomes all the more necessary as renewable energy is still a developing and growing sector and more than 2/3 of its identified and available potential is yet to be harnessed. The identified available potential of various kinds of renewable energy is variable and never a finality and hence technical innovations will certainly open new avenues and vistas of the sector.

Reply of the Government

As stated earlier, the Ministry is primarily focussing on technical collaborations required for initiating research and development, training and creating manufacturing bases with the advanced / developed countries especially US, Europe, Japan etc. It is to be mentioned that the ongoing international collaborations facilitated by the Ministry, helped in overcoming some of the technical constraints such as –

- i. Firming up of Resource Assessment of solar and wind energy using advanced techniques developed by the NREL, USA; GIZ, Germany; RISO Denmark.
- ii. Testing and Certification of Wind Turbines with RISO Denmark and NREL, USA
- iii. Off shore wind power development in India with Scottish Development International (SDI), Scotland and offshore wind resource assessment

off the Tamil Nadu Coast, using SAR (Synthetic Aperture Radar) analysis of Satellite imagery with RISO-DTU, Denmark.

- iv. Solar Radiation resource mapping with German International Zusammenarbeit (GIZ).
- v. Hydrogen Fuel Cell – R&D Project with IIT-M and Imperial College, London.
- vi. R&D project on “Development of a Modular Central Receiver Concentrated Solar Power Plant for Decentralized Power Generation” in cooperation with (i) University of South Florida, USA, (ii) IMDEA Energy, Spain, and (iii) Institute of Energy Technology, Zurich.
- vii. To accelerate and sustain the Solar Water heating market growth through UNDP/GEF Global Solar Water Heating India Project.
- viii. Removal of Barriers to Biomass Power Generation in India” under UNDP/GEF assisted Project.
- ix. Access to Clean Energy under UNDP Project

F.No.1/2/2013-IR dated 4th November, 2013.

(Recommendations Serial No. 10 , Paragraph No.2.10)

The Committee are happy to note that about 168 participants from 60 countries were given training in Solar Energy Centre, Gurgaon and 107 participants from 42 countries were given training in Centre for Wind Energy Technology (C-WET), Chennai during last 4 years. 652 participants from 62 countries have been given training at Alternate Hydro Energy Centre (AHEC) Roorkee during last 15 years. It shows that these institutes have faculty and know how to attract professionals from a large number of countries for training.

Scientists and senior officers of MNRE, SEC, C-WET, AHEC, IITs, etc also undertake visits to various countries for advanced training programmes in areas of renewable energy. During last 3 years as many as 130 such foreign visits were undertaken. The Committee would like the Ministry to ensure that study Reports of these visits are compiled / submitted and copies placed in MNRE / SEC / C-WET for use and reference. This will ensure that visits undertaken are meaningful and are not repetitive in nature.

Reply of the Government

The Ministry facilitates scientists and senior officials of MNRE and its institutions to visit various countries for advanced training programme, participate international conferences etc. The study reports are compiled and circulated to the concerned groups / divisions of the Ministry for action.

F.No.1/2/2013-IR dated 4th November, 2013.

Collaboration for Financing and Credit :

(Recommendations Serial No.11, Paragraph No.2.11)

The Committee observe that besides problems of assessing the renewable energy potential, steps for their promotion, testing and certifications, financing and credit lines are also very important issues impending fast growth of the sector. Strong technical collaborations for research and development, training and creating manufacturing basis is not possible without financial resources. The Committee note that significant steps have been taken with regard to firming up of resource assessment of solar and wind energy, testing and certification of wind turbines by using advance techniques developed in USA, Germany and Denmark, off shore wind power development, hydro fuel cell – R& D Project, removal of barriers on bio-mass power generations in collaborations with foreign countries and international organizations. However, the Committee feel that there is an urgent need for augmented and increased financing and credit lines from various international / multinational funding agencies. Such collaboration should be energy source based rather than project-based as it will help in giving thrust to the entire segment of specific energy source for its expansion and development. Such financial collaboration may be subjected to the identified available potential, technological support, and scope for its development wherever deemed necessary to promote the sector. Research and Development activities should also be undertaken through such financial tie-ups and credit lines. The Committee, therefore, strongly recommend that necessary steps should be taken up by doing necessary spade work to impress upon international / multinational credit agencies like World Bank, United Nations Development Programme, Asian Development Bank, Global environmental facilities etc. to extend credit facilities on agreeable terms for the holistic development of green energy in the Country.

Reply of the Government

The suggestions of the committee have been noted. In this context it is stated that a Joint Declaration of Intent between Germany and India on Indo-German Development Cooperation Regarding the Establishment of Green Energy Corridors was signed on 11th April 2013. The German Financial Institution namely kfW has agreed to provide Euro 1 billion loan. The first line of loan is expected to be delivered shortly. Similarly, under India USA MoU signed recently for "Promoting Energy Access through Clean Energy" ("PEACE"), Export-Import Bank of the USA intended to mobilize up to US\$ 250 million EIM Bank Financing for clean energy access.

F.No.1/2/2013-IR dated 4th November, 2013.

(Recommendations Serial No.12, Paragraph No.2.12)

The Committee note that MNRE provide support for installation of various renewable energy systems / devices etc. both national and international. To support these activities funds are provided from the budget head of the Ministry for projects under implementation following international cooperation under the separate categories of MoUs / Bilateral / Trilateral / Multilateral agreements, various international and multinational funding agencies like World Bank, United Nations Development Programme / global environment facility etc, provide project-based assistance for Renewable Energy Programme in India. The Committee also find that the International financial Institutions provide funds to the projects for harnessing the New and Renewable energy resources which if properly implemented would in the long term significantly enhance power generation and reduce power demand gap. The committee also note that the foreign investors can bring innovations in business models and can complement domestic developers / investors in implementing the RE projects and programmes by investing in this sector. This would also lead to inclusive growth, which is one of the important focal areas of the 12th Five Year Plan. The Committee are, however concerned that though the foreign investors may avail of the concessions from the Ministry in terms of financial and fiscal incentives yet they may not be prompt in implementing these projects. The Committee are, therefore, apprehensive that the foreign investors may not be able to provide long term support to the projects in New and Renewable energy sector. The Committee are of the opinion that to optimize implementation of renewable projects and programmes, investors would expect long term financial support, conducive policy and friendly regulatory framework as a pre-requisite. The Committee, therefore, recommend that the MNRE should bring out

conducive policy and regulatory framework for implementing the RE projects and programmes. They also desire that financial and fiscal incentives should be provided to draw investors and developers for long term support besides bringing about innovation in business models that are entrepreneur driven and delivery based for inclusive growth in new and renewable energy sector. They also urge the Ministry to incorporate effective regulatory mechanism for technological up gradation and quality assurance clauses in the policy so as to ensure that the incentives given for the purpose are used for growth of the Indian Renewable Energy Sector.

Reply of the Government

Government offers fiscal and financial incentives to promote renewable energy development in the country. Foreign Direct Investment (FDI) upto 100% under automatic route is permitted in renewable energy generation and distribution project subject to the provisions of electricity act 2003. There has been Foreign Direct Investment (FDI) inflow to the tune of Rs. 8569 Crores (US Dollar 1756 million) in the renewable energy sector during the last three years (2009-2012) as on 31.12.2012.

In addition, the Government has taken several steps to encourage development of renewable energy sector. These include the following:

- Private sector companies are partnering with government and co-investing in R&D and technology development.
- Fiscal and financial incentives, such as, capital/ interest subsidies, accelerated depreciation, nil/concessional excise and customs duties;
- Preferential tariff for grid interactive renewable power in most potential States following the provisions made under the National Electricity Policy 2005 and National Tariff Policy 2006, Uniform guidelines by CERC for fixation of such preferential tariffs being issued every year;
- Jawaharlal Nehru National Solar Mission launched to facilitate large scale capital investment in solar energy sector, payment Security Mechanism for grid connected solar power projects under the Mission.

The Government also has a policy to encourage transfer of foreign technologies, including those in renewable energy sector.

F.No.1/2/2013-IR dated 4th November, 2013.

(Recommendations Serial No.13, Paragraph No.2.13)

The Committee are aware that UNDP / GEF assisted Projects on solar water heating, project on market development and promotion of solar concentrator based process heat applications, project on removal of barriers to biomass power generation in India, UNDP Project on access to clean energy, World Bank technical assistance for up-scaling deployment of RET based innovative business model are some of the projects being implemented with the financial cooperation / funding of global funding agencies. The tangible benefit in terms of installed capacity through multilateral / bilateral loans for various renewable energy sources have been stated to be around 1,200 MW. The Committee find that the Capacity Addition on this account is extremely low particularly when a number of bilateral and multilateral financing agencies are involved. The Committee are aware of the limitations with regard to the investment in renewable energy power projects being the intermittent nature of renewable energy sources, grid synchronization limitations, relatively higher capital investment, difficulties in servicing and maintenance in remote areas and non-availability of preferential tariff, yet the Committee expect higher capacity addition from such collaborations. The Committee strongly feel that the result achieved are in no way commensurate with the efforts put in during the last three years. They therefore, strongly recommend that international finances despite being project-based or otherwise should be of such scale so as to give the desired thrust to the sector for its proper development, otherwise these activities could be financed domestically as the projects do not have higher financial stakes and are beneficial to the common man. This can become a reality if these projects are made commercially viable through appropriate research and technological advancements.

Reply of the Government

The suggestions of the committee have been noted for future action.

F.No.1/2/2013-IR dated 4th November, 2013.

(Recommendations Serial No. 14, Paragraph No.2.14)

The Committee note that the main objective for providing training to the scientists through international collaboration is to share technical experiences acquired in various fields of renewable energy to facilitate them to develop, operate and maintain various systems and devices apart from developing joint R&D programmes. With regard to long term strategy, it has been stated that Solar Energy Centre is focusing in R&D, Testing and Training in solar energy technology and applications and organizing short-term training courses on various aspects of solar energy. Similarly, C-WET has also been providing specialized training in wind energy sector. These trainings have significantly contributed in the growth of renewable energy over the years. The Committee feel that the facilities of existing training institutions are limited and requires expansion, besides creation of new facilities with the cooperation of international organizations. This will help in the development of indigenous skills for negotiating and managing exploration and exploitation of renewable energy sources. As of now, the scope and area of renewable energy applications has not expanded in a manner wherein it could cater to our domestic requirements and become an alternative energy option. It has also its own limitations with regard to its magnitude and access by commoner despite the fact that it is going to be more useful for the common man given the nature of various sources and their availability throughout the length and breadth of the country and their potential convertibility into electricity. It will be opportune if skill / technical knowledge is imparted to disparate groups wherein most people can be trained for skillful harnessing of available renewable energy sources into their respective areas as specialists. It can be feasible more so when it does not involve higher technical training or enormous financial stakes and can be useful in remote and inaccessible areas as well. The Committee, therefore, strongly recommend that the fruits of international technological cooperation should not remain confined within the four walls of technical institutions of the government or be limited to laboratory of the technical institutions but should reach all possible corners of the country wherein localized renewable energy sources are available. This can be made a reality by imparting working training to the local people in developing, handling and operating various devices based on their areas for which financial requirements can also be sorted out through local Self Help Groups, Local cooperatives, Grameen Banks and other agencies providing small credits.

Reply of the Government

The Ministry actively involves business councils/forums such as CII, FICCI etc. with International cooperation programme with developed countries like Japan, U.K., Australia, China, U.S.A., Germany, etc. where specific Energy dialogue have been established. Under these Energy dialogues, business Council/forums actively involves Indian manufacturers industries to accrue benefits from such International collaboration.

F.No.1/2/2013-IR dated 4th November, 2013.

CHAPTER III

**OBSERVATION/ RECOMMENDATION WHICH THE COMMITTEE DO NOT
DESIRE TO PURSUE IN VIEW OF THE GOVERNMENT'S REPLIES**

Nil

CHAPTER IV

OBSERVATIONS/ RECOMMENDATIONS IN RESPECT OF WHICH THE REPLIES OF THE GOVERNMENT HAVE NOT BEEN ACCEPTED BY THE COMMITTEE AND WHICH REQUIRE REITERATION

Policy/framework on Renewable Energy Sector

(Recommendation Serial No.2, Paragraph No. 2.2)

The Committee find that the energy supply imbalances is increasing in the country. Economic growth requires the fulfillment of the energy needs. To sustain the growth, serious efforts are required to ensure the requisite energy supply. Rise in per capita consumption and spread of energy access has also strained the demand – supply gap of the energy. Conventional sources of energy have their own limitations and the country cannot be solely dependent on them and will have to explore the alternative sources of energy. Renewable energy can make substantial contribution in meeting our energy requirements. In India there is huge potential for power generation through renewable sources such as wind, solar, bio-mass, small hydro etc. For sustained development of this sector, vigorous and concerted efforts will have to be made for the New and Renewable Energy sector. Of late, renewable energy has become an important component of our energy planning process and the Ministry of New and Renewable Energy has been facilitating the implementation of broad spectrum programmes including harnessing of renewable power, R&D in renewable energy sector, renewable energy to rural areas for lighting, use of renewable energy in urban, industrial and commercial applications etc. Consequently, Indian “Renewable Energy Programme has been recognized globally and the country have become second largest in terms of installed bio gas plants, fifth largest in wind installed capacity and have attained fifth position in overall renewable energy capacity installations with more than 6 million decentralized RE systems. The Committee find it to be a modest beginning yet a firm step in the right direction and the country have the potential to play a leading role globally in the renewable sector. The Committee therefore, recommend that a proper policy framework on renewable energy sector should be brought out keeping in view our strengths and weaknesses with regard to various aspects of renewable energy such as proper assessment of potential resource-wise, wind and solar mapping, taking forward the initiatives in thermal & tidal energy, testing and certification, investment for infrastructure, development to attain long term goal of sustainable and inclusive energy for future. Such areas should be prioritized for harnessing in a time bound manner and our weaknesses should be analyzed with a view to rectify them so as to ensure the maximum harnessing of various sources of renewable energy during off season and not so suitable conditions.

Reply of the Government

The estimated renewable energy resource assessment carried out by the Ministry in various renewable energy sources is being further assessed especially for Wind and Solar Energy based on the advance tools and available technological options involving international institutions / agencies. The Centre for Wind Energy Technology (CWET), Chennai is assessing off shore wind power potential with the help of institutions / agencies capable to estimate such potential. Similarly, The Solar Energy Centre, now re-named National Institute of Solar Energy (NISE), is associated with development of solar radiation maps for the country.

F.No.1/2/2013-IR dated 4th November, 2013.

Comments of the Committee

(Please see Para No. 8 of Chapter – I of the Report)

Commercial Cooperation

(Recommendation Serial No.4 Paragraph No.2.4)

The Committee are aware that bilateral and multilateral co-operation frameworks have been established for co-operation and knowledge sharing in renewable energy technology and projects. The focus of interaction for co-operation has been on exploring opportunities for exchange of scientists, shares experiences and take up joint research, design, development, demonstration and manufacture of new and renewable energy systems and devices. The committee find that interests have been shown by many South East Asian countries for strengthening / revival of MoUs and co-operations in renewable energy sector. The Committee feel that while making efforts for collaboration with the developed countries for achieving technological excellence and cost efficiency. It is also important to collaborate with the developing / under-developed countries, where our expertise in technological advancement for harnessing the New and Renewable energy resources should be shared so that the commercial linkages could extend to the Indian domestic producers / exporters. Such International co operations open doors for Indian manufacturing companies for supplies of indigenously manufactured renewable energy products, systems and devices specially in the wind, solar and hydro power sectors. Hence, they recommend that the Ministry of new and Renewable energy should focus on commercial

cooperation in renewable energy through MoUs / Agreements / joint ventures with developing / under-developed countries also. This would allow them to take advantage of the linkages in India such as manufacturing of renewable energy systems, devices, equipments, spare parts etc., while sharing their technological know-how as well.

Reply of the Government

The suggestions of the committee have been noted. The Ministry of New and Renewable Energy has been interacting with several developed and developing countries for cooperation in new and renewable energy sector in close associations with central and state PSUs, industrial associations etc, with a view to establish commercial cooperation for supplies of indigenously manufactured renewable energy products, systems and devices.

In this context it may be noted that a “Joint Declaration of Intent” between Germany and India on Indo-German Development Cooperation regarding the “Establishment of Green Energy Corridors” was signed on 11th April 2013. The German Financial Institution namely kfW has agreed to provide Euro 1 billion loan. The first line of loan is expected to be delivered shortly. In addition, under India-USA Energy Dialogue, a MoU has been signed recently for “Promoting Energy Access through Clean Energy” (“PEACE”). Under this initiative, Export-Import Bank of the USA intended to mobilize up to US\$ 250 million EXIM Bank Financing for clean energy access. Similarly, DFID and EU are helping C-WET, Chennai to estimate off-shore wind power potential and identify most suitable sites for establishment off-shore wind farms in India. The Ministry also established cooperation for initiating “Energy Access” in rural areas and promote “Access to Clean Energy” in association with UNDP, World Bank, GIZ and USA. Such cooperation would help Indian industries to get benefits.

The Ministry also helps and supports many developing countries in Africa, Asia, Egypt, etc. for resource estimation and installation of various Renewable Energy systems/devices. Indian manufacturing industries are executing and supplying various renewable energy systems/devices. The Ministry also provides support to developing countries for capacity building and imparting training etc. So far more than 900 participants were trained from over 81 countries by the Solar Energy Centre, Gurgaon, C-WET, Chennai and AHEC, IIT, Roorkee under Indian Technological and Economic Cooperation (I-TEC) programme with Ministry of External Affairs under Solar, wind and small hydro sectors.

F.No.1/2/2013-IR dated 4th November, 2013.

Comments of the Committee

(Please see Para No. 14 of Chapter – I of the Report)

International Cooperation in Geo-thermal and Tidal Energy

(Recommendation Serial No.8 Paragraph No.2.8)

The Committee note that geo-thermal energy is heat stored in deep interior of earth that can be effectively used for producing electricity as also for direct heat applications. Reportedly Geological Survey of India has identified about 340 geo-thermal hot springs with the potential of 10,000 MW of electricity in the country which are perennial with surface temperature ranging from 37-90 degree Celsius which is suitable enough for direct heat application. The Committee also note that India has a long coast line of about 7,500 KM with estuaries and gulf where tides are strong enough to move turbines for electric power generation. Estimated potential of tidal energy of about 8,200 MW in the country including 7,000 MW in the Gulf of Kambay and 1,200 MW of Gulf of Kachh in the State of Gujarat and about 100 MW in the Gigantic belt in Sunderban region in the State of West Bengal. The Committee, however, observe that the geo-thermal energy potential as well as tidal energy potential in India has not been systematically and scientifically assessed or utilized. They find that the Government has practically done very little to harness this potential. The Committee find that the MNRE has signed a Memorandum of Understanding with the Government of Iceland for scientific cooperation and research in renewable energy and to explore potential of geo-thermal in India in October, 2007. They also find that the State Government of Gujarat has signed a Memorandum of Understanding in January, 2011 with UK and Singapore companies for setting up of 250 MW tidal power plants in Gulf of Kachh. The Committee find that these MoUs are too few to harness the full potential. The Committee feel that such vast potential for electricity generation are being left almost unattended. Even the projects in which Memorandum of Understanding has been signed have not reported any significant progress. The Committee recommend that the MNRE should focus on importing technologies from such advanced countries

or wherever it is available who would provide scientific cooperation and research to assess and utilize the potential of tidal and geo-thermal energy in India within a reasonable time frame. They also recommend that the projects taken up in the MOU with concerned countries should be properly evaluated and regularly monitored to ensure that the objective for which these MoUs have been signed are achieved. They further recommend that the MNRE should keep themselves well abreast of the latest innovations or upcoming technologies world over so that the same could be imported and adapted for domestic production and harness the vast potential of renewable energy.

Reply of the Government

The suggestions of the committee have been noted for future action.

F.No.1/2/2013-IR dated 4th November, 2013.

Comments of the Committee

(Please see Para No. 20 of Chapter – I of the Report)

CHAPTER V

**OBSERVATIONS/ RECOMMENDATIONS IN RESPECT OF WHICH THE
FINAL REPLIES OF THE GOVERNMENT ARE STILL AWAITED**

Nil

**New Delhi
12 December, 2013
Agrahayana 21,1935 (Saka)**

**MULAYAM SINGH YADAV,
Chairman,
Standing Committee on Energy**

APPENDIX I

MINUTES OF THE FIFTH SITTING OF THE STANDING COMMITTEE ON ENERGY (2013-14) HELD ON 11TH DECEMBER, 2013 IN COMMITTEE ROOM '62' PARLIAMENT HOUSE, NEW DELHI

The Committee met from 1030 hrs. to 1100 hrs.

PRESENT

LOK SABHA

Shri Mulayam Singh Yadav - Chairman

2. Shri P.C. Chacko
3. Shri Shripad Yesso Naik
4. Shri Ravinder Kumar Pandey
5. Shri Padamsinha Bajirao Patil
6. Shri A. Raja
7. Shri Baju Ban Riyan
8. Shri Nripendra Nath Roy
9. Shri Jagada Nand Singh
10. Smt. Pratibha Singh
11. Shri Vijay Inder Singla

RAJYA SABHA

12. Shri Bhubaneswar Kalita
13. Shri Kiranmay Nanda
14. Dr. Anil Kumar Sahni
15. Shri Motilal Vora

SECRETARIAT

1. Shri Brahm Dutt - Joint Secretary
2. Shri N.K. Pandey - Director
3. Smt. L.Nemjalhing Haokip - Under Secretary

2. At the outset, the Chairman welcomed the Members and briefly apprised them of the agenda for the sitting. The Committee then took up for consideration of the following draft Reports:

- I) 41st Report on 'Implementation of Rajiv Gandhi Grameen Vidyutikaran Yojana'.
- II) 42nd Report on Action Taken by the Government on the recommendations contained in the 36th Report on 'International Cooperation in New and Renewable Energy Sector'.
- III) 43rd Report on 'Development of Hydro Sector'.
- IV) 44th Report on Action Taken by the Government on the recommendations contained in the 37th Report on 'Development of National Grid'.

4. After discussing the contents of the Reports in detail, the Committee adopted the aforementioned draft Report without any change.

5. The Committee also authorized the Chairman to finalise the above-mentioned Report and present the same to both the Houses of Parliament in the current Session.

6. The Committee placed on record their appreciation for the invaluable assistance rendered to them by the officials of the Lok Sabha Secretariat attached to the Committee.

7. x x x x x x x x x x x

The Committee then adjourned

APPENDIX II

(Vide Introduction of Report)

ANALYSIS OF ACTION TAKEN BY THE GOVERNMENT ON THE OBSERVATIONS/ RECOMMENDATIONS CONTAINED IN THE THIRTY-SIXTH REPORT (15TH LOK SABHA) OF THE STANDING COMMITTEE ON ENERGY

(i)	Total number of Recommendations	14
(ii)	Observations/Recommendations which have been accepted by the Government:	
	Sl.Nos.1,3,5,6,7,9,10,11,12,13 and 14	
	Total:	11
	Percentage	78.6%
(iii)	Observations/Recommendations which the Committee do not desire to pursue in view of the Government's replies:	
	Nil	
	Total:	0
	Percentage	0%
(iv)	Observations/Recommendations in respect of which the replies of the Government have not been accepted by the Committee and which require reiteration:	
	Sl. Nos. 2,4 and 8	
	Total:	03
	Percentage	21.4%
(v)	Observations/Recommendations in respect of which final replies of the Government are still awaited:	
	Nil	
	Total:	0
	Percentage	0%